

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference PE-0692	FOR FURTHER ACTION <small>see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.</small>	
International application No. PCT/BR 03/00122	International filing date (day/month/year) 27/08/2003	(Earliest) Priority Date (day/month/year) 04/11/2002
Applicant COMPANHIA BRASILEIRA DE METALURGIA E MINERACAO - C		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 5 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

1
☐ None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/BR 03/00122

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C22B34/20 C22B5/04 B22F9/20

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C22B B22F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, COMPENDEX

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4 923 531 A (FISHER RICHARD L) 8 May 1990 (1990-05-08) column 2, line 16 - line 53; claims 1-3,5,18; examples 5,7,8 ---	1-10
Y	US 5 234 491 A (CHANG HONGTU) 10 August 1993 (1993-08-10) column 7, line 58 -column 8, line 55 ---	1-10
Y	US 4 487 677 A (MURPHY ANDREW H) 11 December 1984 (1984-12-11) figures 3B-3D ---	1-4
Y	GB 2 233 349 A (CABOT CORP) 9 January 1991 (1991-01-09) example 1 --- -/--	1,2,10

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the international search

27 January 2004

Date of mailing of the international search report

06/02/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,
Fax: (+31-70) 340-3016

Authorized officer

Bombeke, M

INTERNATIONAL SEARCH REPORT

International Application No

PCT/BR 03/00122

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6 136 062 A (LOEFFELHOLZ JOSUA ET AL) 24 October 2000 (2000-10-24) cited in the application column 1, line 60 - line 65; claims 3-7 ---	1,2
Y	US 6 171 363 B1 (SHEKHTER LEONID N ET AL) 9 January 2001 (2001-01-09) cited in the application claims 3-7 ---	1,2
Y	WO 01 59166 A (SHOWA CABOT SUPER METALS K K) 16 August 2001 (2001-08-16) cited in the application examples 1,2 -----	1-10

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/BR 03/00122

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4923531	A	08-05-1990	DE 3931932 A1	29-03-1990
			FR 2636972 A1	30-03-1990
			GB 2224749 A , B	16-05-1990
			IT 1233455 B	01-04-1992
			JP 2225634 A	07-09-1990
			US 5022935 A	11-06-1991
US 5234491	A	10-08-1993	AU 7979391 A	10-12-1991
			DE 69126973 D1	04-09-1997
			DE 69126973 T2	12-02-1998
			EP 0528974 A1	03-03-1993
			HK 1001346 A1	12-06-1998
			KR 220881 B1	15-09-1999
			RU 2089350 C1	10-09-1997
			WO 9118121 A1	28-11-1991
US 4487677	A	11-12-1984	JP 1856755 C	07-07-1994
			JP 5077729 B	27-10-1993
			JP 60238429 A	27-11-1985
			US 4518426 A	21-05-1985
			AU 567737 B2	03-12-1987
			AU 2777484 A	14-11-1985
			EP 0162155 A1	27-11-1985
GB 2233349	A	09-01-1991	AT 406349 B	25-04-2000
			AT 135090 A	15-09-1999
			AU 628578 B2	17-09-1992
			AU 5624790 A	03-01-1991
			BR 9002518 A	13-08-1991
			DE 4019305 A1	10-01-1991
			ES 2020131 A6	16-07-1991
			FR 2648826 A1	28-12-1990
			HK 6895 A	27-01-1995
			JP 2801370 B2	21-09-1998
			JP 3036229 A	15-02-1991
			SG 142294 G	16-06-1995
			US 5580516 A	03-12-1996
			US 5242481 A	07-09-1993
US 6136062	A	24-10-2000	DE 19847012 A1	20-04-2000
			AT 235571 T	15-04-2003
			AU 755289 B2	12-12-2002
			AU 5012799 A	20-04-2000
			BR 9904431 A	08-08-2000
			CN 1251325 A	26-04-2000
			DE 59904709 D1	30-04-2003
			EE 9900504 A	15-06-2000
			EP 0997542 A1	03-05-2000
			IL 132317 A	06-07-2003
			JP 2000119710 A	25-04-2000
			KR 2000028989 A	25-05-2000
US 6171363	B1	09-01-2001	AU 757790 B2	06-03-2003
			BR 9911008 A	30-04-2002
			CA 2331707 A1	16-11-2000
			CN 1308566 T	15-08-2001
			EP 1144147 A1	17-10-2001
			ID 27391 A	05-04-2001

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/BR 03/00122

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6171363	B1	JP 2002544375 T	24-12-2002
WO 0159166	A	16-08-2001	
		JP 2001223141 A	17-08-2001
		AT 245712 T	15-08-2003
		AU 6877200 A	20-08-2001
		BR 0016331 A	24-12-2002
		CN 1433485 T	30-07-2003
		CZ 20022680 A3	16-04-2003
		DE 60004108 D1	28-08-2003
		EP 1255872 A1	13-11-2002
		WO 0159166 A1	16-08-2001
		US 2002152842 A1	24-10-2002
		US 6432161 B1	13-08-2002